**Name:** _____

**Signature:** _____

Show all work clearly and in order. Justify your answers algebraically whenever possible. When you do use your calculator, sketch all relevant graphs and write down all relevant mathematics.

**Instructions**: In each case, produce a graph of $f(x)$ that reveal all the important aspects of the curve. In particular, you should use the techniques learned in pre-calculus, and refine this primitive graph by using the $f'(x)$ and $f''(x)$.

1. Graph.

$$f(x) = \frac{x^3 - 1}{x^3 + 1}$$

2. Graph.

$$f(x) = x^{\frac{5}{3}} - 5x^{\frac{2}{3}}$$

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[1]This document was prepared by Ron Bannon using LaTeX.